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Electron paramagnetic resonance in YbNiAl2 single crystals with strong magnetic anisotropy

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Abstract

© 2017, Pleiades Publishing, Ltd.Anisotropy in the magnetic properties of YbNiAl2 intermetallide has been studied. Electron paramagnetic resonance (EPR) signals assigned to the localized magnetic moments of trivalent ytterbium have been detected at temperatures below 20 K. Spin–lattice relaxation processes like the Orbach–Aminov process with participation of the first excited Stark sublevel of the Yb3+ ion with an energy of 96 K govern electron–spin dynamics and the disappearance of spectrum lines with a further increase in temperature. Strong magnetic anisotropy effects are discussed as a main reason for the appearance of electron paramagnetic resonance.

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